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EARLY VERSUS DELAYED LAPAROSCOPIC CHOLECYSTECTOMY IN ACUTE CHOLECYSTITIS

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Abstract

Laparoscopic cholecystectomy is performed rather commonly by general surgeons for symptomatic gall stones. This study is an analysis of experience for the timing of laparoscopic cholecystectomy for acute cholecystitis performed in Basrah, Iraq, by one surgeon.

This study aimed to know the difference between early and delayed laparoscopic cholecystectomy in acute cholecystitis with respect to the hospital stay, conversion rate, and major complications rate.

Data were collected from the medical records of patients with acute cholecystitis admitted to the surgical wards during (June 2009 to September 2011). Patients were divided into 2 groups on the basis of treatment received. Length of hospital stay, major complications, and conversion rates were analyzed.

Ninety seven patients with acute cholecystitis underwent laparoscopic cholecystectomy. Thirty nine patients (40.2%) treated with early laparoscopic cholecystectomy, fifty eight patients (59.8%) treated with delayed laparoscopic cholecystectomy. Length of stay was significantly shorter in the early laparoscopic cholecystectomy group compared with the delayed laparoscopic cholecystectomy group (P<.001). Conversion rate and major complication rates were not statistically different.

In conclusion, early laparoscopic cholecystectomy resulted in a statistically significant reduction of hospital stay, low major complications, and no significant difference in conversion rates when compared with initial antibiotic treatment and delayed laparoscopic cholecystectomy. Despite these advantages, early laparoscopic cholecystectomy is not the most common treatment for acute cholecystitis in practice.

Introduction

Symptomatic gall stones & acute cholecystitis are commonly facing general surgeons[1].

Cholecystectomy is indicated as recurrent attacks are likely, but recommendation regarding the timing of the surgery has undergone change in recent years[2].

As long as 4 decades ago, surgeons began to recognize that early cholecystectomy is the preferred strategy for managing the acutely inflamed gallbladder because the edematous plane facilitates dissection and single-stage definitive treatment lessens both the total duration of morbidity and the potential for late complications such as gangrenous or emphysematous cholecystitis[3]. The evidence of benefit from early operation became persuasive via prospective randomized trials in the 1990s[4,5].

In 1992, the National Institutes of Health (NIH) Consensus Development Conference stated that laparoscopic cholecystectomy "provides a safe and effective treatment for most patients with symptomatic gallstones[6]".

As laparoscopic cholecystectomy became dominant in the early 1990s, some early adopters began to accept the challenge of a laparoscopic approach to acute

cholecystitis. Conversion rates were high. As techniques and equipment have improved, conversion and complication rates have declined compared with those initial reports[4,7,8].

During the last several years, various studies have addressed the optimal timing of laparoscopic cholecystectomy in patients with acute cholecystitis; they concluded that early cholecystectomy, within 24 to 72 hours during the index of admission results in shorter hospital length of stay and has similar complication and conversion rates compared with delayed operations performed several weeks after the admission[9-14].

In addition, at least one study has shown that delaying laparoscopic cholecystectomy results in increased morbidity and may lead to unnecessary readmission of patients awaiting surgery[15].

Despite this accumulation of evidence, it remains common practice to treat acute cholecystitis with conservative treatment and delayed laparoscopic cholecystectomy[16].

The aim of our research is to study the difference between early and delayed laparoscopic cholecystectomy especially in the length of hospital stay; the rate of conversion; and major complications rate.

Patients and methods

Data collected from the medical records of 97 patients with acute cholecystitis who were admitted to the surgical wards in Al-mawanii general hospital; Al-mosawi private hospital; and Ibn-albaitar private hospital in Basrah, Iraq. The diagnosis of acute cholecystitis was made on the basis of a combination of history taking (right hypochondrial pain; nausea; and vomiting) and findings on clinical examination (right upper quadrant tenderness and Murphy sign); laboratory data (leukocytosis, white blood cell count >11x109/L); and sonographic evidence of gallstones, thickened gallbladder wall, pericholecystic fluid, and/or sonographic Murphy sign. Hepatobiliary iminodiacetic acid-enhanced scintigraphy was unavailable for the diagnosis in equivocal cases.

Patients were divided into the following groups on the basis of treatment received: (1) Early laparoscopic cholecystectomy, within 72 hours of admission; (2) Delayed laparoscopic cholecystectomy after 6_10 weeks of admission after respond to conservative treatment.

A course of broad-spectrum IV antibiotic therapy was administered to all patients. Third generation cephalosporin was given at induction of anesthesia, and at least 2 doses post operation.

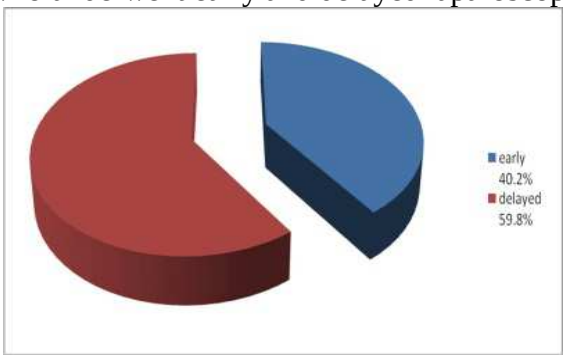
Intraoperative cholangiography was unavailable.

Laparoscopic cholecystectomy was performed by one senior surgeon. Data were collected for analysis; duration of symptoms at initial presentation, and ultrasonographic findings at admission; reason for and rate of conversion to open cholecystectomy; major complications; and length of hospital stay. Variables were compared between early and delayed laparoscopic cholecystectomy using Fisher s exact test, p value had been calculated using SPSS protocol version[15].

Results

Ninety seven patients with diagnosis of acute cholecystitis underwent either early laparoscopic cholecystectomy (n=39 [40.2%]), or delayed laparoscopic cholecystectomy after response to conservative treatment (n=58[59.8%]), as illustrated in figure 1.

Figure 1: Patients who underwent early and delayed laparoscopic cholecystectomy



The length of hospital stay was shorter for early laparoscopic cholecystectomy, range (3-8) days; mean (3.53), than delayed group, rang (4-10) days; mean (5.93), with p value less than 0.001, as illustrated in table I.

Table I: Comparison of hospital stays between early and delayed groups

variable	Early	delayed	P value
Length of hospital stay, range in days; mean	(3-8); 3.53	(4-10); 5.93	0.001

The conversion rate to open cholecystectomy was not different statistically between early and delayed laparoscopic cholecystectomy, for early group 2 cases converted to open cholecystectomy, the rate was 5.1%, and for delayed group 4 cases converted to open cholecystectomy, the rate was 6.9%, p value 0.540, as demonstrated in table II.

Table II: Comparism of conversion rate between early and delayed groups.

variable	Early	delayed	P value
Conversion: cases, percentage	2 (5.1%)	4 (6.9%)	0.540

The most common reason for conversion was obscured anatomy secondary to dense adhesions, thickening, and fibrosis.
The second reason was hemorrhage in 2 cases, one case in early group, and the second one in the delayed group.
According to the major complications rate, there was no difference between the two groups. Four major complications were statistically analyzed: hemorrhage, bile duct injury, bile leak, and pancreatitis.
For hemorrhage, there were 2 cases, 1 case in the early group (2.6%) and the other in the delayed group (1.7%), with p value of 0.645.In both cases the source of the bleeding was from the cystic artery which ligated and secured by conversion to open cholecystectomy. For bile duct injury; no bile duct injury was encountered in the early group, while one case encountered in the delayed group (1.7%), p value was 0.598. The patient complaint from abdominal pain two months after the surgery with mild obstructive jaundice. MRCP done and shows stricture at the common hepatic duct, the patient was admitted to the surgical ward but refused any further interference and discharged on her responsibility. One case with bile leak encountered in the early group (2.6%). The patient complained of abdominal pain five days postoperatively and

abdominal ultrasounds showed subhepatic collection, exploration done and found cystic duct stump necrosis leaking bile which needed ligation. Two cases of bile leak encountered in the delayed group (3.4%) and were due to accessory ducts, which discovered after exploration for abdominal pain postoperatively and the site of bile leak was from the gall bladder bed and secured by suturing. P value between early and delayed groups for bile leak is 0.576. One case of pancreatitis encountered in the delayed group (1.7%), while no case of pancreatitis in the early group, p value 0.598. The cause was a missed stone impacted at the ampulla of vater. ERCP done with extraction of the stone at special gastrointestinology centre.

The results for major complications are illustrated in table III.

Table III: Comparison of complications between early and delayed groups.

	complication			
type	hemorrhage	Bile duct injury	Bile leak	pancreatitis
Early: case, percentage	1, (2.6%)	0, (0%)	1, (2.6%)	0, (0%)
Delayed: case, percentage	1, (1.7%)	1, (1.7%)	2, (3.4%)	1, (1.7%)
P value	0.645	0.598	0.576	0.598

Discussion

The indication for approximately 20% of present-day cholecystectomies is acute cholecystitis. Acute cholecystitis is secondary to gall stones in 90% of cases. Cholecystectomy is the definitive treatment for acute cholecystitis[17].

Cholecystectomy is indicated as recurrent attacks are likely, but recommendation regarding the timing of the surgery has undergone change in recent years[2].

As laparoscopic cholecystectomy became dominant in the early 1990s, some early adopters began to accept the challenge of a laparoscopic approach to acute cholecystitis. Conversion rates were high. As techniques and equipment have improved, conversion and complication rates have declined compared with those initial reports[4,7,8].

In our study, the length of hospital stay is shorter in patients treated with early laparoscopic cholecystectomy (mean 3.53) than who treated with delayed cholecystectomies, mean (5.93), with p value less than 0.001. Reduced length of hospital stay is likely associated with reduced overall cost for those patients who will ultimately require surgery. Completion of treatment during the index admission is likely to result in fewer total days of recovery, and earlier return to work[18].

This result is also concluded by other studies like Kiviluoto, et al, which done in 2007 in America which result in a mean of hospital stay of (4 days) for patients treated with early laparoscopic cholecystectomy compared with delayed laparoscopic cholecystectomy.

The conversion rate to open cholecystectomy in early group was 5.1%, and 6.9% for delayed group, with p value of 0.540, which is statistically insignificant.

In comparison, this rate of conversion also documented and achieved in a study

done in America achieved by Jatzko et al, in 2009, with conversion rate of 5.4% in patients with acute cholecystitis treated by early laparoscopic cholecystectomy.

The rate of major complications was statistically not different between early and delayed groups in our study.

We believe that our adoption of the critical view of safety technique is responsible in large part for the low conversion rates and lack of major bile duct injuries.

Conclusion and Recommendation

As a result of our study; we found that early laparoscopic cholecystectomy for acute cholecystitis is feasible and safe with no difference in conversion rate and major complications rate in safe and expert surgeon hands, and we hope that this study will guide for more studies that may change the strategy of management of acute cholecystitis in our institutions in the future.

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